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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,979	12/18/2001	Herbert Schumacher	(E) 1734 US	5959

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EXAMINER

MCCLOUD, RENATA D

ART UNIT PAPER NUMBER

2837

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,979

Applicant(s)

SCHUMACHER ET AL.

Examiner

Renata McCloud

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-26, 28-46, 48, 50, 52, and 54-62 is/are rejected.
- 7) ☒ Claim(s) 27, 47, 49 and 53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 28, 29, 48, and 54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) The term "substantially" in claims 28, 29, and 54 is a relative term which renders the claims indefinite. The term "substantially" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

(b) There is no period at the end of claim 48.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 23-26, 28, 29, 35-37, 40, 51, 52, 54, 55, and 60-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Tadokoro et al (U.S. Patent 4,926,636).

Tadokoro et al teach:

Claim 23: A muffler device comprising: a plurality of mufflers (Fig. 1: 24A, 24B), and an actuator for changing a flow resistance of exhaust gases flowing through the mufflers to change the damping characteristic of the muffler device (Fig. 1: 26), wherein the actuator is provided in a pipe branch comprising an inlet (Fig. 1:11) and a plurality of outlets (Fig. 1: out from 24A and 24B), each outlet being connected by a connecting pipe to one of the mufflers (Fig. 1:21A, 21B), and a through flow cross section of the inlet being variable by means of the actuator (Fig. 1:26, actuator controls through flow).

Claim 24: the plurality of mufflers comprise two mufflers (Fig. 1: 24A, 24B), and the plurality of outlets comprise two outlets (Fig. 1: out from 24A and 24B).

Claims 25 and 51: the mufflers are of like construction (Fig. 1: 24A, 24B).

Claims 26 and 52: the connecting pipes have an equal through flow cross section (Fig. 1:21A, 21B).

Claims 28 and 54: the actuator constructionally united with the pipe branch (Fig. 1:26)

Claims 29 and 55: the actuator is biased by a spring (Fig. 1:26b) in a direction of a closing position that closes the inlet, and is movable when a gas pressure of flowing exhaust gas is increased before the inlet, against a force of the spring into an open position opening the inlet (Col. 6:17-22).

Claims 35 and 60: the actuator comprises a passive control element and automatically reaches its opening position due to a force of a counter pressure of flowing exhaust (Col. 6:5-22).

Claims 36 and 61: the force of the counter-pressure is exerted directly on a cross-sectional surface exposed to exhaust gas flow of the closure member of the actuator against a force of a spring (Col. 6:13-22).

Claim 37: the force of the counter-pressure is exerted on a separate actuating element of the actuator to move the actuator into an open position (Fig. 1:71).

Claims 40 and 62: the actuator comprises an active control element (e.g. Fig. 1:16) and a separate actuating element (e.g. Fig. 1:71) that is driven by control electronics (Fig. 1:61) of a motor vehicle engine.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 34 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro et al as applied to claim 23 above in view of Fallon (U.S. Patent 4,913,260).

Claims 34 and 59: Tadokoro et al teach the limitations of claim 23. Referring to claims 34 and 59, they teach the actuator comprising a control valve (Fig. 1:25). They do not teach the control valve comprising a valve plunger and a closure member comprising a valve disk selected from a flattened, conical or hemispherical valve disk or valve member. Fallon teaches the actuator comprising a control valve (Fig. 5:36) comprising a valve plunger (Fig. 5:38) and a

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closure member comprising a valve disk selected from a flattened, conical or hemispherical valve disk or valve member (Fig. 5:26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Tadokoro et al to include the teachings of Fallon. The advantage of this would be means for a driver to control the bypass valve and the amount of bypass gas flow, thereby providing means to vary the attenuation of gas flow sound.

8. Claims 30, 31, 38, 39, 41-45 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro et al as applied to claim 23 above, and further in view of Olszok et al (U.S. Patent 5,821,474).

Claims 30 and 56: Tadokoro et al teach the limitations of claim 23. Referring to claims 30 and 56, they do not teach the actuator comprising a closure member that engages with the inlet and has on its periphery at least one indentation equally distributed on the periphery. Olszok et al teach an actuator (Fig. 2:10) comprising a closure member (e.g. Fig. 2:5) that engages with the inlet (Fig. 1:1) and has on its periphery at least one indentation equally distributed on the periphery (e.g. Fig. 2:14.2).

Claim 38: Tadokoro et al teach the limitations of claim 37 and referring to claim 38, the actuating element comprises a pressure container (Fig. 1:26a), a pressure side of a diaphragm in the pressure container is connected via a pressure duct to the counter-pressure before the inlet of the pipe branch (Col. 6:5-13), and a spring is arranged in the pressure container (Fig. 1:26a). They do not teach a spring arranged in the pressure container on a low-pressure side of the diaphragm, and a middle of the diaphragm is connected to the actuator. Olszok et al teach the

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actuating element (Fig. 2:10) comprises a pressure container (e.g. Fig. 2:14.4), a pressure side of a diaphragm (Fig. 2:11.3) in the pressure container is connected via a pressure duct (Fig. 2:15.4) to the counter-pressure before the inlet of the pipe branch, and a spring is arranged in the pressure container on a low pressure side of the diaphragm (Fig. 2: 12.3), and a middle of the diaphragm is connected to the actuator (Fig. 2:11.3).

Claim 41: Tadokoro et al teach the limitations of claim 40. Referring to claim 41, they do not teach the actuating element comprising a low pressure container, a low pressure side of a diaphragm in the low pressure container being connected via a control duct to one of a vacuum pump and an intake pipe of the motor vehicle engine, a middle of the diaphragm being connected to the actuator. Olszok teaches the actuating element comprises a low pressure container (Fig. 2:14.4), a low pressure side of a diaphragm (Fig. 2:11.3) in the low pressure container being connected via a control duct to one of a vacuum pump and an intake pipe of the motor vehicle engine (Col. 2:5-10), a middle of the diaphragm being connected to the actuator (Fig. 2:11.3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Tadokoro et al to include the teachings of Olszok. The advantage of this would be means for reducing overpressure inside the motor thereby reducing damage to muffler components including springs.

Claim 31: Tadokoro et al and Olszok et al teach the limitations of claim 30. Referring to claim 31, Olszok et al teach two indentations (Fig. 2:14.2,14.3).

Claims 39 and 42: Tadokoro et al and Olszok et al teach the limitations of claim 40.

Referring to claim 41, Olszok et al teach the middle of the diaphragm is connected to a free end of a valve plunger (Fig. 2:13) of a disk valve (Fig. 2:5.1)

Claim 43: Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 43, Olszok et al teach a pressure side of the diaphragm of the low pressure container comprises a housing vent bore (Fig. 2:15.4) that provides atmospheric pressure (Col. 3:63-67).

Claim 44: Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 44, Olszok et al teach a pressure the pressure side of the diaphragm of the low-pressure container is directly exposed to the atmosphere (Fig. 2:15.4).

Claim 45: Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 45, Olszok et al teach a pressure a spring is arranged on the low-pressure side of the diaphragm in the low-pressure container (Fig. 2:12.3).

9. Claim 46 rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro et al and Olszok et al as applied to claim 41 above, in view of Kao (U.S. Patent 4,866,933).

Claim 46: Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 46, they do not teach an electromagnetically operable on/off valve or a steplessly controllable pressure regulating valve is arranged in the control duct, and the on/off valve or the steplessly controllable pressure regulating valve is driven by the control electronics of the motor vehicle engine. Kao teaches an electromagnetically operable on/off valve (Fig. 3:60) arranged in a control duct (Fig. 3:60), and the on/off valve is driven by the control electronics of the motor vehicle engine (Col. 1:45-55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Tadokoro et al and Olszok et al to include an electromagnetically operable on/off valve as taught by Kao. The advantage of this would be an exhaust silencer that automatically responds to the rpm of an engine.

10. Claims 32 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro et al applied to claim 23 above, in view of G.A. Kingsley (U.S. Patent 2,072,372).

Claims 32 and 57: Tadokoro et al teach the limitations of claim 23. Referring to claims 32 and 57, they do not teach the actuator comprises a closure member that engages with the inlet, and comprises axial passages that are distributed over the cross section of the closure member. G.A. Kingsley teaches the actuator comprises a closure member (18) that engages with the inlet (4), and comprises axial passages that are distributed over the cross section of the closure member (7-10).

Claims 33 and 58: Tadokoro et al teach the limitations of claim 23. Referring to claims 33 and 58, they do not teach the actuator comprises a closure member that engages with the inlet and has a diameter such that in a closed position a peripheral gap to an internal diameter of the inlet remains free. G.A. Kingsley teaches the actuator comprises a closure member (18) that engages with the inlet (4) and has a diameter such that in a closed position a peripheral gap to an internal diameter of the inlet remains free (Fig. 1: free area around 16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Tadokoro et al to include the teachings of

G.A. Kingsley. The advantage of this would be an exhaust silencer that prevents accumulation of backpressure.

Allowable Subject Matter

11. Claims 27, 47, 53, and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 48 and 50 are objected to as being dependent upon a rejected base claim would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior Art of Record fails to teach an actuator extending along and symmetrically about the axial axis of an inlet; an actuator secured to a stiffened flattened middle of a diaphragm; a first connection connected to a second connection in a first valve position, and the second connection connected to the third connection in a second valve position; or a plunger guided between two outlets outward as far as a spring housing.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (703) 308-1763. The examiner can normally be reached on Mon.-Thurs and every other Fri. from 8 am - 5pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on (703) 308-3370. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Renata McCloud
Examiner
Art Unit 2837

RDM
April 19, 2003


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